

**IN THE UNITED STATES DISTRICT COURT  
FOR THE NORTHERN DISTRICT OF NEW YORK**

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**HEIDI EVERTS, Individually  
(FJS/DAP)  
and as Executrix of the Estate of  
TIMOTHY EVERTS,**

**Plaintiff,**

**vs.**

**ALTEC INDUSTRIES, INC.,**

**Defendant.**

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**Civil Action No. 5:01-CV-0383**

**Action No. 1**

**PLAINTIFF'S RESPONSE TO  
ALTEC'S MOTION IN LIMINE  
No. 4**

**ALTEC INDUSTRIES, INC.,**

**Defendant/Third-Party Plaintiff,**

**vs.**

**NIAGARA MOHAWK POWER  
CORPORATION,**

**Third-Party Defendant.**

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**Civil Action No. 5:01-CV-0383  
Action No. 2**

**PLAINTIFF'S RESPONSE TO DEFENDANT ALTEC'S MOTION IN LIMINE  
NO. 4: TO EXCLUDE THE TESTIMONY OF PLAINTIFF'S EXPERTS, B.  
WESLEY SHERMAN, PH.D., AND JOHN FROST**

**COMES NOW** the plaintiff, by and through the undersigned counsel, and submits this Response and Brief in Support addressing Defendant Altec's Motion to Exclude the testimony of Plaintiff's liability experts. Because Plaintiff's experts are qualified to offer the opinions proffered and their opinions are reliably based and will assist the triers of fact, Defendant Altec's Motion in Limine No. 4 is due to be denied.

**A. The previous rulings of the Court made by U.S. Magistrate Judge David E. Peebles was valid as within the discretion of the Court and no undue prejudice has resulted to Defendant Altec.**

Altec begins its Motion by revisiting the ruling of U.S. Magistrate Judge David E. Peebles, wherein Plaintiff was granted leave to name additional experts, namely John Frost and Wesley Sherman. Those experts were then deposed at length by both defendants in a timely manner. Altec complains that they have been unfairly prejudiced by the addition of these experts because the newly named experts had the benefit of reviewing Defendant Altec's expert reports as a part of their investigation, and that Plaintiff's experts should be disqualified to offer opinions as a result.

Altec's position is flawed for two reasons: 1) Plaintiff's experts would ultimately have been given the opportunity to review Altec's expert witnesses' opinions, and offer comment and rebuttal regardless of the timing, and 2) The primary opinions of Plaintiff's experts were not affected in any way by the review. As discussed below, the exact hazard alleged and addressed in the instant case, was alleged and investigated by the same experts in Walters v. Altec, Case No. 3:01-cv-371-J-12TEM, in the United States District Court for the Middle District of Florida, Jacksonville Division. Plaintiff's expert witnesses' opinions are virtually identical in the instant case as those proffered in Walters. Obviously, review of Altec's expert's opinion had little or any effect on Plaintiff's experts' analysis. Consequently, no undue prejudice was suffered by Altec or Niagara Mohawk, and the Magistrates' ruling allowing the additional experts was within the Court's discretion and should not be disturbed.

**B. Both Wesley Sherman and John Frost have previously been qualified to provide essentially the same opinions in Walters v. Altec.**

In Walters, Altec filed virtually identical Motions in Limine against Plaintiff's

experts, John Frost and Wesley Sherman. The Walters incident involved the identical hazard, and resulted in devastating injuries to Michael Walters (loss of both arms above the elbow) under circumstances very similar to the instant case.<sup>1</sup> In Walters, very similar to the instant case, exposed metallic components associated with the Jib near the end of the boom were left unguarded or uncovered. An energized line made contact with the exposed metallic component and the main control handle became energized as a result. Mike Walters had a de-energized or ground line in his left hand and the main control in his right hand, completing a circuit through the controls and into his arms and torso and out to the grounded line.

Both John Frost and Wesley Sherman investigated that incident, using the same methodology utilized in the instant case. The district court, after reviewing the briefs, submissions and after conducting hearings on the issue denied Defendant Altec's Motions, ruling that John Frost and Wesley Sherman were qualified to offer their opinions. See Exhibit A and B. The exact same defect and claims were alleged in Walters as in the instant case. The opinions offered by Dr. Sherman and Mr. Frost in Walters are virtually identical to the instant case, where the same hazard is presented and the same recommended alternatives have been offered. It is important to note that the Walters case occurred in November of 2000, six months following the Everts incident. The Motions, Responses and Order of the Court in Walters are attached hereto as Exhibits A, B, D, F, G, H, through H-11.

A review of the hearing transcript in the Walters matter along with the associated briefs and exhibits demonstrates that the district court thoroughly examined the

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<sup>1</sup> In fact, the Court in Walters found that the Evert's case was substantially similar to the Walters case for purposes of Notice to Altec of the hazard. See attached hearing transcript, Exhibit ??

qualifications of John Frost and Wesley Sherman and their respective methodologies and found that they met the requirements of Daubert and its progeny. All of the work done by those experts in the Walters case is equally applicable to the instant case. On the basis of the Federal District Judge's thorough analysis in Walters, it is clear that Wesley Sherman and John Frost are amply qualified to testify in this case and that their opinions are based upon sound methodology and should not be disqualified to offer the same opinions in the instant case, where the exact same hazard is addressed with the same manufacturer and with very similar relevant facts.

**C. Altec's admissions, documents, employees and experts confirm Altec's recognition of the control energization hazard, as well as the feasibility and efficacy of isolating controls and covering exposed metallic components in the boom tip area to provide dielectric protection, create a material issue of fact.**

Here as in Walters, Altec asserts that Plaintiff's experts should not be able to testify about alternative feasible designs or the foreseeability of the incident occurring. Yet, Altec's own documents, its own retrofit programs and safety bulletins, and the testimony of its own employees clearly indicate that such a hazard was, in fact, foreseeable and that the remedies suggested by John Frost and Wesley Sherman were not only feasible and effective, but have actually been utilized by Altec in its cover program and isolated control handle program. See Exhibits H-6, H-5, H-3. Again, this issue was briefed extensively in the Walters. Consequently, Altec's criticism of Dr. Sherman's and Mr. Frost's opinions on foreseeability of the incident and of the feasibility of the alternatives suggested by Mr. Frost and Dr. Sherman is disingenuous at best.

In Walters, Altec admitted that it is reasonably foreseeable that inadvertent contact will occur between energized conductors and the boom tip area of insulated aerial lift devices and that energized contact with the exposed metallic components can result in

energization of the main control handle, resulting in serious injury or death to an operator who may be operating the unit. Sytsma Depo. in Walters at 153-54, Exhibit H-1; Sytsma Depo. in Sawyer at 159-164, Exhibit E. It is undisputed that the design of the cover system on the AN652 Everts unit had exposed or uncovered portions of the metallic components in the boom tip area and that the point of contact was at one of those exposed areas, just as in Walters. Altec admits that it was technically feasible before this incident to have covered the exposed metallic component in issue with a cover having electrical puncture resistance exceeding 34,500 volts AC. Chard Depo. in Chard at 20, 28, Exhibit H-2. Furthermore, Altec admits that had a fiberglass cover manufactured pursuant to Altec's internal standards been installed over the point of contact, injury would have been less likely. Id. at 32, 33. Considering these admissions, it is astounding that Altec attacks Plaintiffs' experts for proposing the very covers Altec admits were feasible and would have reduced the chances of injury to operators.

**D. Dr. Sherman And John Frost Satisfy The Daubert Requirements And, Therefore, Their Testimony Should Not Be Excluded.**

Altec seeks the exclusion of Wesley Sherman's and John Frost's expert opinion testimony, contending that they are without the necessary qualifications and their testimony is unreliable. Altec's contentions are disingenuous at best. In exercising the Court's gate-keeping role, the Court will see that, in fact, both experts are more than qualified and the reliability of their testimony is unquestionable.

Federal Rule of Evidence 702 governs the admissibility of expert opinion evidence. The Rules of Evidence embody a strong and undeniable preference for admitting any evidence having the potential for assisting the trier of fact. See Holbrook v. Lykes Bros. S.S. Co., 80 F.3d 777, 780 (3d Cir.1996). Indeed, Rule 702 has a liberal

policy of admissibility. See Id. at 780.

When faced with a proffer of expert testimony, the district court must determine whether the expert witness is qualified and has specialized knowledge that will "assist the trier of fact to understand the evidence or to determine a fact in issue." Fed. R. Evid. 702; see generally United States v. Sepulveda, 15 F.3d 1161, 1183 (1st Cir. 1993) (citing Daubert v. Merrell Dow Pharmaceuticals, Inc., 509 U.S. 579, 591 (1993)), cert. denied, 512 U.S. 1223, 114 S.Ct. 2714, 129 L.Ed.2d 840 (1994). Under the Federal Rules of Evidence, it is the role of the trial judge to act as a "gatekeeper" to ensure that any and all expert testimony or evidence is not only relevant, but also reliable. Daubert, 509 U.S. at 589.

First, the court has broad discretionary powers in determining whether or not the proposed expert is qualified by "knowledge, skill, experience, training, or education." Fed. R. Evid. 702; see generally Richmond Steel, Inc. v. Puerto Rican Am. Ins. Co., 954 F.2d 19, 21 (1st Cir.1992). Next, the court decides if the proposed subject matter of the expert opinion properly concerns "scientific, technical, or other specialized knowledge." Fed. R. Evid. 702. Finally, the court performs a gate-keeping function to ascertain whether the testimony is helpful to the trier of fact, i.e., whether it rests on a reliable foundation and is relevant to the facts of the case. See Vadala v. Teledyne Indus., Inc., 44 F.3d 36, 39 (1st Cir.1995); see also Daubert, 509 U.S. at 591 (characterizing this consideration as one of "fit").

The Daubert Court made it clear, however, that when a court is determining relevance and reliability, the list of factors found in Daubert do not constitute a "definitive checklist or test." Id. at 593. Instead, the gate-keeping inquiry must be "tied

to the facts' " of a particular "case." Id., at 591 (quoting United States v. Downing, 753 F.2d 1224, 1242 (3<sup>rd</sup> Cir. 1985)). The Daubert Court observed that the list of factors contained in its opinion was meant to be helpful rather than definitive. Indeed, the Supreme Court has noted that the factors listed in Daubert do not *all* necessarily apply in every instance when the reliability of scientific testimony is challenged. Kumho Tire Co., Ltd. v. Carmichael, 119 S. Ct. 1167, 1175 (1999). In fact, under Daubert, the Federal Rules of Evidence allow district courts to admit a somewhat broader range of scientific testimony than would have been admissible under Frye, but the trial judge is left to serve as "gatekeeper" in screening the evidence. Fed. R. Evid. 702; General Elec. Co. v. Joiner, 522 U.S. 136 (1997).

With these standards in mind, we now address Altec's contentions concerning the testimony of Dr. Byron Wesley Sherman and John Frost.

**1. Dr. Sherman is qualified as an electrical engineer to offer opinions concerning electrical insulating and isolation principals, and the methodology he used in arriving at his conclusions and opinions is a reliable method used by experts in his field.**

In a superficial review of Dr. Sherman's testimony, Altec asserts that Dr. Sherman is not qualified to offer his opinions and that, even if he were qualified, his opinions are not reliable under the Daubert standard. However, as the following analysis and discussion reveals, Dr. Sherman's credentials are impeccable. He is highly qualified to offer opinions concerning the alleged defect and negligence, and his opinions are relevant, will assist the trier of fact in deciding factual issues, and are absolutely supported by a reliable methodology.

The ultimate issue about which Dr. Sherman is testifying is whether the product in question, the Altec AN 652 insulated aerial lift device, is not reasonably safe or defective or

negligently designed because it could have been, but was not, designed in such a way as to have prevented or minimized the reasonably foreseeable conduction of electricity from the point of contact with the energized line at exposed or unguarded metal near the end of the boom into the main controls (where Mr. Everts had his right hand at the time of his tragic electrical shock). Dr. Sherman ultimately concludes that, in fact, the Altec AN 652 insulated aerial lift device was not reasonably safe and was defective and/or was negligently designed and bases that conclusion on the following opinions:

1. It is reasonably foreseeable that inadvertent boom contact will occur with energized conductors, and that operators of the unit will not always wear protective gloves while operating the unit while the boom tip is in proximity to energized conductors, especially when those conductors are not within the immediate reach of the linemen.

Summary bases: Dr. Sherman reviewed SB-AM-203, Altec's own service bulletin from 1986, that addressed this exact hazard. Exhibit H-3.

2. Non-metallic covers such as those utilized on much of the product in issue, when properly assembled, will provide substantial insulation or isolation of metallic components (such as the jib bracket) in the boom tip area at distribution line voltages such as the voltages involved in this case.

Summary bases: Dr. Sherman's extensive testing, as set out below and as described in his deposition, supports this opinion, as well as the Altec testing. Exhibit H-5.

3. The contact with the energized line in this case occurred at the exposed part of steel structures on or near the boom tip area.

Summary Bases: The point of contact is not reasonably in dispute. However, Dr. Sherman relied on his own physical inspection of the product as well as photographs of the product to identify the point of contact of the energized line with the exposed metallic component near the end of the boom. The recreation video as well as photographic



evidence confirms the contact point. Nor is the electrical continuity between the metallic component to the basket mounting bracket and control valve assembly in dispute.

4. Continuity testing indicated a direct low resistance path between the steel structures near the boom tip area and the control handle. Examination revealed that conductive paths were ensured by means of bonding straps.

Summary Bases: Dr. Sherman examined the product, and performed conduction testing to confirm the conductivity between the control handle and the exposed metallic component near the boom tip area.

5. The manufacturer of the product was negligent in failing to cover exposed areas of metallic structures near the boom tip area. But for this failure, within a reasonable electrical engineering probability and under the circumstances as they existed on the day of this incident, the conductive path into the controls that resulted in Mr. Everts' electrocution would not have occurred.

Summary Bases: Dr. Sherman examined the product and conducted dielectric testing of similar covers and cover materials. His examination and testing support his conclusions, as more fully discussed below.

6. The use of non-conductive covers completely covering metallic structures on and near the boom tip area would have been economically and technically feasible, and would have provided substantial and adequate conductive protection to have prevented injury to Mr. Everts.

Summary bases: Dr. Sherman's examination of the covers on the existing unit as well as examination of covers on similar units indicates that non-conductive covers would have been economically and technically feasible to design and to install over the exposed metallic component near the end of the boom where contact was made. Dr. Sherman's examination and evaluation of the unit in question, as set out below, demonstrated that extending the existing cover over the exposed metallic portion of the steel structure where the contact occurred was specifically feasible on the subject unit. Additionally, Dr.

Sherman's dielectric testing of similar covers indicates that such cover material would be more than adequate to prevent current flow from contact, especially at the voltages involved in this case (4.8 KVAC).

**2. Dr. Sherman is amply qualified to evaluate and provide opinions on the issues described above.**

Incredibly, Altec proclaims that Dr. Sherman is unqualified to offer opinions in this case because he has not been involved in the design of a control handle for a bucket truck, or any device for linemen, has not taught linemen. Dr. Sherman does not hold himself out as an expert on linemen safe work practices, ergonomics or human factors, or warnings. That said, it is important to understand the significance of Dr. Sherman's expertise, i.e., the issue of current flow and how to prevent it through the product to the operator to make the product safer. Dr. Sherman's main consideration, as an electrical engineer with more than 30 years of experience, is to determine the feasibility and efficacy of insulating covers or guards and isolated control handles. Turning the Daubert on its head, Altec argues that in order to be qualified to form such opinions, Dr. Sherman would have had to have written papers on the subject, lectured on the subject, had his testing peer reviewed, etc.<sup>2</sup> It is important to be mindful that the control energization hazard in issue in this case involves the central issue of how to prevent a "circuit" from forming under the circumstances of inadvertent energized line contact. If an electrical engineer, with 30 years of electrical engineering experience is not qualified to address this issue, it is difficult to fathom who might be.

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<sup>2</sup> Altec also contends Dr. Sherman is not qualified because he has not performed any tests on covers. This contention is simply not true. Dr. Sherman has not only performed tests on covers but has reviewed the tests on covers. See Section III.B.2.c(3), infra (reviewing Dr. Sherman's Methodology in reaching his conclusions and forming his opinions).

A review of Dr. Sherman's Resume, attached to Sherman Aff., Exhibit C, provides substantially more detail about his "years of training and experience" and his "knowledge of circuit theory." Dr. Sherman received his B.S. in Electrical Engineering in 1957 from the University of Missouri, his Masters in Electrical Engineering in 1959 from the University of Missouri, and his Ph.D. in electrical engineering in 1966 from the University of Missouri. Obviously, to have achieved these degrees, Dr. Sherman would have to know a little about electricity and how to contain it.

But Dr. Sherman's academic experience is not limited to his own formal education. Dr. Sherman began instructing and teaching electrical engineering at the University of Missouri-Columbia in 1963. He became an Assistant Professor of Electrical Engineering in 1966, and an Associate Professor of Electrical Engineering in 1969. In 1974, he was made a full Professor of Electrical Engineering at the University of Missouri. He has continued in that role as a teacher and professor of electrical engineering to the present time. Considering his significant academic background, to suggest that Dr. Sherman is unfamiliar with and lacks expertise in the area of electrical fields and circuitry is disingenuous at best.

Dr. Sherman's academic credentials extend beyond his teaching duties and include research and writing surrounding electrical issues. Significant portions of Dr. Sherman's academic research have addressed the issues of insulating properties or dielectric properties of material. Dr. Sherman has written articles on the subject of analyzing the feasibility of fiberglass poles in electric power distribution systems, the subject of which involves dielectric issues similar to the instant case. Dr. Sherman's conference papers and lectures include numerous references to incidences involving the failure of insulating materials resulting in electrical fires and personal injury property damage. He has lectured numerous

times to insurance companies, electrical power distribution companies, and others on issues surrounding electrical hazards resulting in electrical fires.

Obviously, over Dr. Sherman's 45-year career as an electrical engineer, educator, publisher and lecturer, he has accumulated a great deal of knowledge about electrical circuitry, currents and fields, and about the types of materials and properties of materials required to contain and control electrical voltages and currents such as those in issue in this case. He is eminently qualified through education and experience, pursuant to Daubert and Khumo Tire, to conduct analysis of the electrical issues in this case and to provide the opinions outlined above and in his deposition testimony.

**3. Dr. Sherman's conclusions and opinions are based on reliable methods utilized by experts in his field.**

"[A]n expert's testimony is admissible so long as the process or technique the expert used in formulating the opinion is reliable." In Re Paoli RR Yard PCB Litigation, 35 F.3d 717, 742 (3<sup>rd</sup> Cir. 1994) (citing Daubert, 509 U.S. at 589, 113 S.Ct. at 2794-95). While the Daubert factors enunciated by Altec "may be considered by the trial court ... whether these factors are reasonable measures of reliability in a particular case is a matter that the law grants the trial judge broad latitude to determine." Clark v. Chrysler Corporation, 310 F.3d 461, 466-67 (6th Cir. 2002). Considering Dr. Sherman's vast and extensive background in electrical field study and electrical engineering in general, his opinions based solely upon his extensive knowledge and experience are sufficient to meet the Daubert requirements. However, Dr. Sherman has done much more than just rely on his vast educational and research experience in the study of electricity and electrical hazards.

**a. Dr. Sherman has conducted testing on boom trucks.**

Contrary to Altec's assertions, Dr. Sherman has conducted a similar analysis for the very same issue (energized controls from exposed metallic components in the end of the boom of an insulated aerial lift device) in the instant action. Among others, Dr. Sherman has done testing on covers in Brown v. Telelect. See December 2001 testing documented by videotape and included in exhibits to Dr. Sherman's deposition. The testing of cover materials performed in that case confirmed the feasibility of utilizing non-conductive covers to prevent energization of controls on the insulated aerial lift device involved in that case (OM-50 Terex Hi Ranger insulated aerial lift device). Exhibit H-8.

In addition to Brown v. Terex-Telelect, Dr. Sherman has investigated and evaluated at least three other incidences similar to the instant case: Randal v. Altec and Fenstermacher v. Telelect (Sherman Depo. in Walters at 175, Exhibit H-8), and the Walters incident. In each case, the defect issues were virtually identical. His experience in evaluating and analyzing those incidences cannot be divorced from his analysis in the present case and serves as further support for his qualifications to conduct an analysis of the Everts' incident.

**b. Dr. Sherman has reviewed extensive documentation on the hazard as well as on the efficacy and feasibility of non-conductive covers.**

In preparation for reaching his opinions in this case, Dr. Sherman reviewed extensive documentation provided to him through discovery, involving the identification and specifications of the product in issue, the preliminary accident investigations conducted by the employer and other documentation concerning the operation and maintenance of the subject product, as well as the depositions of numerous fact witnesses as listed in his report. Sherman Report, Exhibit C. He reviewed and analyzed the

photographic evidence of the product and accident site, all of which depicted the points of contact on the product and the energized lines and Mr. Everts' point of contact with the control handle and the non-energized line. This material provided Dr. Sherman with a clear understanding of the dynamics of the incident and what components of the product were involved in the conductive path.

Dr. Sherman has also relied on Altec's own documents and testing to confirm the efficacy and feasibility of covers. See Bates Testing Documents, Exhibit H-5; Cover Criteria Documents, Exhibit H-6. Contrary to Defendant's interpretation, when asked about whether any manufacturer "has ever put covers on a unit that are designed to provide dielectric protection to the operator," Dr. Sherman replied that "the covers on the Altec unit do provide dielectric protection to the operator" and that if Altec "didn't intend it, they should have." Sherman Depo. in Walters at 124, Exhibit H-8. Dr. Sherman confirmed that SB-AM-203, a 1986 service bulletin issued by Altec and reviewed by Dr. Sherman as part of his file material, clearly suggested that Altec was manufacturing covers for metallic components near the end of the boom for dielectric protection as early as 1986, to prevent or minimize the exact same hazard in issue in this case, i.e., energization of the controls. Sherman Depo. in Walters at 183, 184, Exhibit H-8.

In light of Altec's own insulating cover and control isolation programs as early as 1986, Altec's insistence that Dr. Sherman's opinions lack reliability because he was unaware of any manufacturer that has ever specifically proclaimed a cover to have a dielectric purpose is specious at best. See SB-AM-203, Exhibit H-3. Dr. Sherman's lack of cataloged knowledge on other manufacturer's intent with regards to covers does not negate his clear conclusions from his review of available documentation that the purpose

of the covers are to provide dielectric protection. Altec is well aware, or should be aware, of Telelect's previous cover retrofits to accomplish exactly the same type of protection suggested by Dr. Sherman. And Altec is aware or should be aware of Pitman's retrofit programs of the 1970's to provide covers and guards to address the same hazard.

**c. Dr. Sherman has conducted dielectric testing of covers and cover material.**

Contrary to Altec's insistence, Dr. Sherman is not *merely* relying on his "experience and beliefs" (or "self-acclamation") to support his opinions. Altec's insistence that Dr. Sherman has never successfully tested his theories concerning dielectric covers on any aerial device is just plain wrong. The facts are that Dr. Sherman has conducted extensive testing of dielectric covers designed for use on insulated aerial lift devices, several of which have been Altec designs. The tests were conducted using the same type of testing equipment utilized by Altec in its dielectric testing of its products and indicated that in the worst case, the covers protected against in excess of 33,000 volts of potential--far exceeding the 4800 nominal voltage involved in Mr. Everts' incident. Sherman Aff. at 5, Exhibit H-7, Exhibit C.

Dr. Sherman also conducted testing of components previously utilized by Altec as part of a retrofit to an AM series insulated aerial lift device back in the late 1980's (May 2000 videotape). The shaft cover in issue was part of changes that were documented in SB-AM-203, issued by Altec in 1986. Dr. Sherman testified that SB-AM-203 supported and confirmed his opinions that non-conductive covers should be and are intended by Altec and do serve as substantial protection from energization of underlying metallic components near the end of the boom. Sherman Depo. in Walters at 170-174, Exhibit H-8.

Finally, in light of his extensive testing of dielectric materials on other aerial lift devices, the fact that Dr. Sherman has not tested the cover on the particular subject unit in the field should not be used as a basis for denying the admissibility of his opinion testimony. Clark v. Chrysler Corporation, 310 F.3d 461, 466-67 (6th Cir. 2002). Here, as in Clark, the fact that specific dielectric testing was not performed on the covers of the particular unit in the field does not diminish the validity of Dr. Sherman's extensive testing of other covers as a methodology supporting the reliability of the opinions arising out of the testing. Id. at 467, 468.

The issue here is whether the circuit that resulted in Mr. Everts' injury could have been eliminated by preventing energized line contact with the otherwise exposed metallic component at the end of the boom. Dr. Sherman's testing clearly shows that covers are feasible and effective for that purpose. His testing is more than adequate to meet the Daubert test for reliability.

**d. Dr. Sherman inspected the product and accident scene.**

Dr. Sherman's inspection of the accident scene and subject unit provides further reliable bases for his opinions. Dr. Sherman performed a complete and detailed inspection of the subject product and the accident scene. Exhibit C. Dr. Sherman also conducted continuity testing on the subject unit using a voltmeter, where he documented the circuit between the control handle and the point of contact on the jib extension mechanism. Exhibit C.

In summary, Dr. Sherman's testimony is clearly relevant and reliable. Clark v. Chrysler Corporation, 310 F.3d 461, 466 (6th Cir. 2002). Dr. Sherman used examination procedures consistent with those procedures an electrical engineer would use in



evaluating this incident: he identified the current path, he identified points of contact, he evaluated the mechanical operation of relevant components, and he determined whether and to what extent the design could be modified to prevent or minimize the electrical hazard that resulted in Tim Everts' fatal injury. He evaluated the feasibility of preventing or minimizing the potential for a conductive path into the controls of the unit and concluded that prevention was feasible and practical, consistent with Altec's own testing and actions in the past and post-accident. Given Dr. Sherman's extensive experience, impeccable credentials, sound testing methodologies, and the clearly relevant nature of his testimony, Altec's motion to exclude his testimony should be denied.

**E. Mr. Frost is qualified as a certified safety engineer and electrical engineer to offer opinions concerning electrical insulating and isolation principals and the methodology he utilized in arriving at his conclusions and opinions is a reliable method utilized by experts in his field.**

#### **1. Overview of Mr. Frost's Opinions:**

The ultimate issue about which Mr. Frost is testifying is whether the product in question, the Altec AN 652 insulated aerial lift device, is not reasonably safe and was defective or negligently designed because it could have been, but was not, designed in such a way as to have prevented or minimized the reasonably foreseeable conduction of electricity from the point of contact with the energized line at the exposed or unguarded metallic component near the end of the boom and into the main controls (where Mr. Everts' hand was when he was electrocuted). Thus, the issue is whether the product can be made safer and whether those alternatives would have made a difference in the present case. Like Dr. Sherman, Mr. Frost also ultimately concludes that, in fact, the Altec AN 652 insulated aerial lift device was not reasonably safe and was defective and/or was negligently designed.

More specifically, Mr. Frost made the following findings (See Frost report, attached hereto as Exhibit C):

1. Upon current flow initiation, the muscles in both of Mr. Everts hands contracted and he was unable to release either the control handle in his right hand or the non-energized line in his left. The handle was pushed rapidly off center by traumatic involuntary reactions and the boom assembly swung into the pole. This movement broke contact between the boom and the phase line and stopped the arcing. The final resting location was therefore not the same as the location at the time of initial contact.
2. Based upon post-accident photography, witness statements and a physical inspection of the hardware involved, it is my opinion that the initial contact that energized the upper portion of the AN 652 Insulated Aerial Lift Device occurred on the upper section of the metallic pulley structure attached to the end of the insulated boom. This component is conductive, but is provided with a white fiberglass protective guarding cover over the forward eighty percent of the component. Unfortunately, this guard leaves a 2.5-inch gap of exposed metal between the guard and the insulated boom. This partial guard worked properly and prevented electrical current flow to the structure until such time as the wire was effectively channeled into the guard gap by the structure of the boom.
3. The potential for inadvertent contact between the above described metallic component and energized conductors should have been clearly apparent to Altec, the manufacturer of the AN 652 Insulated Aerial Lift Device. There have been numerous similar contacts with other IALDs that they have produced resulting in numerous injuries and deaths. The potential for such contact is the subject of several warnings produced by Altec and has been cause for retrofits on other model IALDs. The particular location of this exposed metal and the design of the surrounding structure made accidental contact especially likely with this design. In accordance with standard Safety Engineering methodology, the hazard should have been eliminated by design if feasible. Altec's stated reliance on operators always wearing insulating gloves at the time of accidental contact is unreasonable and ineffective at controlling this hazard.
4. Proper design of the guard to fully cover the potential contact point was both technologically and economically feasible. Simply lengthening the existing guard could have completely covered the exposed metal and eliminated this hazard.
5. Once the exposed metal became energized, the current traveled unimpeded to the conductive metallic bucket support structure. This energized the metal

frame to which the insulated bucket is attached. Megger testing of this path confirmed full continuity.

6. The handle which actually delivered the fatal electrical shock to Mr. Everts' right hand was conductive metal and electrically continuous with the hydraulic control assembly to which it was attached. However, this assembly was mounted to the insulated bucket assembly, not to the adjacent energized bucket support structure. This isolation could have effectively isolated the control handle from the hazard, but for a bonding strap that Altec had intentionally added connecting these two structures together electrically. This bonding strap delivered the fatal current directly from the bucket support frame to the hydraulic boom control assembly and therefore to the conductive handle being used by Mr. Everts. Additionally, the control handle itself could have been constructed of insulating materials and electrically isolated from the hydraulic control mechanism to protect the user. Elimination of the bonding strap or insulation of the control handle could have effectively isolated the handle assembly and prevented Mr. Everts' death. Both of these techniques were technologically and economically feasible at the time of the AN 652 manufacture.
7. Warnings placed on the Altec AN 652 and in its Operating Manual are ineffective in controlling the inherent hazard of accidental line contact with portions of the boom assembly because of the very nature of accidental contact, the hidden nature of the conductive component, and the lack of clarity in the warnings. It is noted that a number of career linemen coworkers of Mr. Everts were unaware of the potential for energization of the control handle in the event of accidental contact between parts of the boom and energized conductors. Reliance on warnings to control this inherent design hazard is ineffective unreasonably dangerous.
8. Based upon the above and my background, training and experience, it is my opinion that the design of the Altec AN652 Insulated Aerial Lift Device is inherently hazardous, unreasonably dangerous and defective.

**2. Mr. Frost is highly qualified though education, experience, training and knowledge to address the hazards giving rise to Mr. Walter's injuries in this case.**

The first question is whether Mr. Frost is qualified in the area of expertise offered by "knowledge, skill, experience, training, or education." Altec contends that Mr. Frost is not qualified as an expert to provide expert opinion in the area of system safety analysis, claiming that he lacks the requisite "knowledge, skill, experience, training or education" in

the area of insulation and isolation of controls, and dielectric covers, as well as evaluation of safety measures involving operators of aerial lift devices. Altec insists that Mr. Frost is not qualified because he has not: designed any component that has ever been used on a bucket truck; operated an insulated aerial lift device; provided safety instructions to linemen utilizing bucket trucks; been involved in the promulgation of safety manuals for linemen;, or, taught any seminars, safety courses, or any type of course to linemen, . Contrary to Altec's insistence, Mr. Frost has ample experience as a safety engineer and is well-qualified to give opinions concerning protection from electrical injury.

As a safety engineer, Mr. Frost's work, by definition, is "protecting humans from injury, principally, to include electrical injury"... Frost Depo. in Walters at 5, Exhibit H-4. In this vein, Mr. Frost has received a great deal of education as indicated by his CV. Attached as Exhibit C. First, John Frost is highly qualified as a safety engineer dealing with electrical issues based upon his educational background alone. In 1972 Mr. Frost received his B.S. in Electrical Engineering from the University of Virginia. He was a Dupont Scholar on full Academic Scholarship. In 1974, Mr. Frost completed the US Army Safety Engineering Intern Program. This program provided him specialized safety engineering courses, and he was certified as a Safety Engineer through this program. Also in 1974, he received his Master of Engineering in Safety Engineering from Texas A&M University. Exhibit C.

Mr. Frost is a registered Professional Engineer in the specialty of Safety Engineering. Of particular note is Mr. Frost's certification as a Utility Safety Administrator by the National Safety Council. The National Safety Council is an international organization chartered by Congress and dedicated to educate and influence society to adopt

safety, health and environmental policies, practices and procedures that prevent and mitigate human suffering and economic losses arising from preventable causes. The Utilities Division is the premier safety association of the National Safety Council, comprised of more than 200 active members from various utility areas. The mission of the Utilities Division mirrors the Council's mission. The Utilities Division also provides the utility industry with a resource and reference center assisting the continued identification and elimination or control of hazards that are likely to cause personal injury, illness, damage to property and/or harm to the public and environment. Finally, Mr. Frost has received numerous awards and honors for his work as a safety engineer. Clearly, Mr. Frost's education has more than qualified him in the area of system safety engineering, especially in the electrical utilities field as well as electrical matters in general. Exhibit C.

However, Mr. Frost's background qualifications are not limited to his extensive education in system safety; his work history provides additional extensive evidence of his knowledge and experience in System Safety analysis. Between 1974 and 1978, Mr. Frost provided oversight of line work at Fort Monmouth, New Jersey. "We ran our own utility department there. I was involved in relocation of lines [although he did not work on the lines himself]. I was involved in accident investigation for utility workers." Frost Depo. in Waltes at 6, Exhibit H-4. This work involved distribution work in the range of 7200 volts AC to 12,000 volts AC, as well as service line voltages. Exhibit H-4. He has done "much work" dealing with high voltage throughout his 30 years as a safety engineer. Exhibit H-4.

Mr. Frost also served as the safety advisor for linemen performing the line work at Fort Monmouth. Exhibit H-4. As a part of that work, and contrary to Altec's version of Mr. Frost's deposition testimony, Mr. Frost reviewed local work procedures and instructed on

local lineman procedures, including advising on safe work practices for the linemen to use. Exhibit H-4 at 8. Mr. Frost demonstrated his knowledge of gloving requirements and generally his recollection of the work rules involving approach distances to energized lines that were in effect at the time he was at Fort Monmouth. Exhibit H-4 at 9, 10.

Although Mr. Frost has not *actually* performed lineman work on distribution line voltages, he has worked in other areas with voltages in the distribution range. Exhibit H-4 at 16. Utilizing an insulated aerial lift device, he has observed distribution line work being performed from a distance of 10 feet from energized conductors. Exhibit H-4 at 17. Additionally, Mr. Frost has had some experience utilizing a bucket truck for purposes of observing work practices. Exhibit H-4 at 18. In his work evaluating linemen practices, Mr. Frost has evaluated the ergonomics of rubber gloves in his capacity as a system safety engineer, wearing the gloves himself, both with and without the leather outer protective gloves, to determine their usability firsthand. Exhibit H-4 at 21.

Contrary to Altec's interpretation of Mr. Frost's testimony, in his capacity as a systems safety engineer, Mr. Frost has taught safety courses or seminars to safety engineers and safety directors, who were often linemen themselves. Exhibit H-4 at 19.

Although Mr. Frost has not designed any componentry specifically for use on an insulated aerial lift device, he has designed "a number of high voltage components that would be very similar to those that would be used in a bucket truck." Exhibit H-4 at 21. Additionally, Mr. Frost has been involved in numerous high voltage projects to include "high energy lasers, lightning simulation devices, lines feeding those types of devices, nuclear weapon high energy and high voltage trigger devices." Exhibit H-4 at 6.

Mr. Frost's entire working career has involved the area of system safety engineer work in one form or another as indicated by his work history on his CV. Exhibit C. From 1974 to the present, he has been involved in occupational safety issues, design evaluation and safety testing, and evaluating existing equipment utilizing system safety principals. From 1997 to the present, he has been responsible for safety engineering support for over \$13 billion of product research, development and procurement, and he continues to serve as the "Designated Safety and Health Official and Hazard Classification for the Redstone Arsenal." Exhibit H-4 at 1, 2.

Clearly, Mr. Frost has extensive education and experience in the specialty of system safety in general as well as, more specifically, system safety in the area of electricity and electrical utilities. The fact that Mr. Frost has never personally worked on high voltage energized lines from a pole or from an insulated aerial lift device does not negate his extensive knowledge concerning work practices and his qualifications as an electrical engineer to evaluate electrical hazards associated with the product. He is more than qualified as an expert to offer opinions concerning the duties of a manufacturer to identify electrical hazards associated with its products as well as how those hazards should be addressed once identified.

**3. Mr. Frost's methodology is based upon reliable techniques utilized by System Safety Engineers.**

As a certified System Safety Engineer, Mr. Frost is charged with the duty and purpose of "protecting humans from injury, principally, to include electrical injury." Frost Depo. at 5. He achieves this purpose through a methodology of investigating incidents or accidents, identifying the hazards responsible for causing injuries, suggesting and evaluating remedies for eliminating or minimizing the hazard that causes the injury, and evaluating

whether the proposed remedy will create other hazards or in some other way create other problems. This is the method that he utilized in this case.

Other than the specious general objections to the qualifications of John Frost as a System Safety Engineer, Altec objects to two of his opinions: (1) that a fully isolated control handle would have prevented Mr. Everts' injuries, and, (2) that the exposed metallic components should have been fully guarded using dielectric non-conductive or non-metallic guards.

While Altec contests the reliability of Mr. Frost's methodology concerning these issues, they ignore their own testimony and documents acknowledging that they have designed and implemented the very isolated controls (iso-grip as discussed above) they criticize Mr. Frost for suggesting. Chard Depo. in Walters at 40, 41, Exhibit H-2. Altec has, for years, designed, manufactured and installed fiberglass covers over almost all boom-end metallic components. Systma Depo. in Walters at 106, Exhibit H-1. More recently, Altec has undertaken a program of redesigning many covers pursuant to the criteria set out in Exhibit H-6 (cover criteria) for the purpose of covering as much exposed metallic components as possible and providing at least secondary protection from electrical injury. Systma Depo. in Walters at 101-104, 107-112, Exhibit H-1. Yet Altec condemns Mr. Frost as unreliable for suggesting the very same remedies to the hazard.

In any event, Mr. Frost's System Safety Engineering methodology in forming his opinions is sound and reliable, and it is the same methodology utilized by other System Safety Engineers in his field. The methodology is that which he has used throughout his career as a safety engineer for military installations, consistent with the Daubert



requirement that an expert “have a reliable basis in the knowledge and experience of his discipline.” Daubert v. Merrell Dow Pharmaceuticals, Inc., 509 U.S. 579, 591 (1993). Daubert acknowledges that “an expert is permitted wide latitude to offer opinions, including those that are not based on firsthand knowledge or observation.” Daubert v. Merrell Dow Pharmaceuticals, Inc., 509 U.S. 579, 591 (1993).

It is important to keep in mind that the issue here is whether the circuit that resulted in Mr. Everts’ injury could have been eliminated by preventing energized line contact with the otherwise exposed metallic component at the end of the boom. Dr. Sherman’s testing clearly shows that covers are feasible and effective for that purpose. Mr. Frost had access to Dr. Sherman’s test results, but those tests results are not critical in Mr. Frost’s evaluations in this case since Altec’s own testing, consistent with Dr. Sherman’s testing, clearly shows that the material used by Altec to construct its covers is more than adequate to prevent a circuit from forming through energized contact at the jib extension mechanism. See Bates Testing Documents, Exhibit H-5.

Of course, as an electrical engineer, who has extensive experience working with high voltage systems and associated insulating guards, Mr. Frost was well aware that materials, such as the fiberglass cover materials still used by Altec, were available long before the sale of Mr. Everts’ unit, and that these materials were capable of providing adequate insulation and barrier protection from energized line contact with underlying metallic components.<sup>3</sup>

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<sup>3</sup> Although Mr. Frost did not personally conduct tests on dielectric covers in this case, that is not a requirement under Daubert. “Daubert does not require an expert to come in and actually perform tests in any given situation, the court concluded that this testimony should not be precluded merely because [the witness] had not performed testing in the case.” Clark v. Chrysler Corporation, 310 F.3d 461, 467 (US App. 2002).

Yet Altec insists that Mr. Frost, in order to satisfy the Daubert reliability requirements, must meet all of the factors outlined in Daubert. As previously stated, Daubert made clear that its list of factors was meant to be helpful, not definitive. Indeed, those factors do not all necessarily apply even in every instance in which the reliability of scientific testimony is challenged. Kumho Tire Co., Ltd. v. Carmichael, 119 S. Ct. 1167, 1175 (1999). In this case, not every prong of Daubert is applicable to this inquiry. However, after the following summary of Mr. Frost's actions in evaluating the product and the incident in question, Plaintiffs will address Altec's specific protestations.

As an initial part of Mr. Frost's evaluation of the product from a System Safety Engineer point of view, Mr. Frost reviewed large amounts of research material related to the incident and product, as well as Niagra Mohawk documentation of the event and work practices rules. Those items are listed in Mr. Frost's report on pages 2 and 3, and include a review of the Niagra Mohawk Accident Prevention Manuals as well as the depositions of numerous Niagra Mohawk employees. See Frost Report. Exhibit C.

In addition to the materials directly related to this incident, Mr. Frost has reviewed numerous photographs of the specific AN 652, of the accident scene. In addition, in Walters he evaluated photographs of a number exemplar insulated aerial lift devices, with different control configurations, covers systems and barrier kits. These photographs included examples of Hi Ranger products, Terex-Telelect products, photographs of Pitman units with the Pitman Barrier Kit installed, and various service bulletins, articles and manuals related to the Pitman Barrier Kit.

Mr. Frost also examined, tested and evaluated the product in issue firsthand, familiarizing himself with characteristics and function of the product. Exhibit C. Mr.

Frost's inspection and review of documents and file materials confirmed the conductivity between the exposed metallic component near the end of the boom and the main control handle. Exhibit C.

It is clear that Mr. Frost followed an established and proven method of investigating an accident from a System Safety Engineer perspective. Using all of the physical data available to him, as well as documentary and photographic evidence, Mr. Frost identified and confirmed the hazard and identified feasible remedies to eliminate that hazard.

Despite Altec's own practice of utilizing those very same remedies suggested by Mr. Frost, Altec nevertheless continues to sit idly by attacking Mr. Frost's opinions regarding the use of an isolated or insulated control handles and covers or guards over the exposed metallic structures near the end of the boom. With regard to the isolated control handle, Altec maintains that Mr. Frost could not offer sufficiently reliable bases for his opinion that such a handle should have been and could have been utilized in the instant case to eliminate or minimize the potential for energization of the control handle.

As an electrical engineer, the concept of insulated controls is well within Mr. Frost's area of experience. Mr. Frost testified that "insulating control handles are frequently used on many kinds of high voltage equipment. There are lots of examples of those from dielectric testing equipment to lighting generation equipment that I have worked on, high voltage test equipment, etc." Frost Depo. in Walters at 123, Exhibit H-4. Mr. Frost went on to explain that he had conducted high voltage testing on Delrin high voltage insulated devices similar to the Delrin handles used by Pitman in its bucket truck. Frost Depo. Walters at 134, Exhibit H-4.

Mr. Frost also pointed to Altec's own Iso-grip insulated control handle. The Iso-grip is designed, manufactured and now installed by Altec on some of its insulated aerial lift devices for use in distribution work. Mr. Frost cited that as another example of an insulated control handle on an insulated aerial lift device. Id. at 134, Exhibit H-4. Significantly, the Iso-Grip control handle is certified well in excess of the 4800 volts AC that Mr. Everts was subjected to in this case, as discussed above.

All of the testing conducted by Dr. Sherman and by Altec (see Bates Testing Report, Exhibit H-5), clearly shows that covers made from fiberglass material to Altec's specifications, in good condition and reasonably maintained, provide ample protection against conductivity of underlying metallic components. It is not the dielectric effectiveness of the covers on the unit that is in issue; instead, it is the complete absence of a cover over the exposed metallic component by Altec, when it knew that such exposure would subject the operator to an unreasonable risk of electrical shock. The issue here is why Altec chose not to design the boom end cover in such a way as to eliminate or provide a barrier or guard over the exposed 2.5 inch metallic section where the energized contact occurred.

The bottom line: the absence of dielectric testing data for the specific covers in issue is an insufficient basis for excluding Mr. Frost's testimony, when Altec's own testing of cover materials shows extremely high dielectric strength that would have prevented the conductivity of the metallic structures if only the area had been covered with the same material adjacent to the exposed metal. See Bates Testing Report, Exhibit H-5.

## CONCLUSION

On the basis of the above discussion it is clear that Dr. Wesley Byron Sherman and Mr. John Frost are amply qualified to conduct an analysis of the product in this case, and to provide opinion testimony relevant to the issue of product defect and manufacturer negligence. Their methodologies in evaluating the product are sound and reliable and their opinions arising from their analyses are likewise reliable. Far from Altec's characterization, neither Dr. Sherman's opinion testimony nor Mr. Frost's opinion testimony is "based solely on their belief and assumption." Neither analysis is the "junk" science or "hunches" that Daubert and its progeny is designed to limit and both Dr. Sherman's opinion testimony and Mr. Frost's opinion testimony, as set out above, should not be limited as requested by Defendant Altec.

Accordingly, Defendant Altec's Motions to Exclude Expert Testimony should be denied. Should the Court have any concerns about the qualifications, methodology, or reliability of either expert's testimony, Plaintiffs request an opportunity to present Dr. Sherman and/or Mr. Frost to the Court so that the experts may address any of those concerns.

**RESPECTFULLY SUBMITTED** this 26th day of October, 2004.

/s/ Joseph D. Lane

Joseph D. Lane  
J. Farrest Taylor  
Angela J. Mason  
**COCHRAN, CHERRY, GIVENS,  
SMITH, LANE & TAYLOR, P.C.**  
163 W. Main Street  
P. O. Box 927  
Dothan, AL 36302  
(334) 793-1555 – Phone  
(334) 836-2500 – Facsimile

- and -

**JOHN A. DeFRANCISCO**  
**DeFRANCISCO LAW FIRM**  
121 East Water Street  
Syracuse, New York 13202  
(315) 479-9000 – Phone  
(315) 479-9300 – Facsimile

*Attorneys for Plaintiffs*

**CERTIFICATE OF SERVICE**

I hereby certify that on October 26, 2004, I electronically filed Plaintiff's Motion to Exceed Page Limit with the Clerk of the District Court using the CM/ECF system, which sent notification of such filing to the following:

Robert J. Smith, Esq.  
[rjs@ccf-law.com](mailto:rjs@ccf-law.com)

Robert H. Hood, Sr., Esq.  
[bobby.hood@hoodlaw.com](mailto:bobby.hood@hoodlaw.com)

Robert H. Hood, Jr., Esq.  
[bobbyjr.hood@hoodlaw.com](mailto:bobbyjr.hood@hoodlaw.com)

Timothy J. Fennell, Esq.  
[tfennell@apfwlaw.com](mailto:tfennell@apfwlaw.com)

/s/ Joseph D. Lane

**JOSEPH D. LANE**